EFFORTS

Emphysema Foundation For Our Right To Survive

Emphysema Takes Your Breath Away December 2006

American Association For Respiratory Care Kicks Off National Lung Health Campaign At Irving High School

To educate high school students across the country about lung disease and the role of respiratory therapists in maintaining lung health, the American Association for Respiratory Care (AARC) will kick-off a series of national seminars beginning with a presentation to the students of Irving High School (900 O'Connor Road, Irving, Texas) on Wednesday, Dec. 6 at 10 a.m. Respiratory therapist David Gibson will lead the educational presentation, describing how respiratory therapists quickly attend to patients gasping for air the second they arrive in the emergency room. It is the respiratory therapist's job to provide treatment and care to those patients suffering a severe attack of asthma or COPD (chronic obstructive pulmonary disease).

"When a patient is struggling to breathe and rushed into the emergency room, it is the job of the respiratory therapist to treat them immediately - basically to save that person's life," said Gibson, who has been a respiratory therapist for 20 years and is the clinical specialist at Medical City Hospital Dallas. "To demonstrate the procedure, we use a special mannequin and show the students how we may start with an oxygen mask, but sometimes will need to insert a tube down the patient's throat to be sure they can breathe again. This procedure is called intubation and usually gets their attention."

Besides demonstrating intubation, Gibson will have students assist him on another emergency situation respiratory therapists face quite often - cardio pulmonary resuscitation or CPR. This will be demonstrated in a real-life scene with two ambulance paramedics rushing a patient - one of the school's teachers - on a gurney into a mock emergency room. There, Gibson will show the students how quickly he must make a physical assessment, hook the patient up to a cardiac monitor, check the patient's oxygen saturation and consider other life-saving procedures. In the course of the presentation, Gibson will highlight how the lungs function, the importance of avoiding smoke or smoke-filled air and what happens when the airways become blocked or constricted because of an asthma attack or COPD exacerbation (severe attack).

"Besides informing students about a profession they may want to consider pursuing, this seminar will educate the kids about the lungs and how they function," said Tom Kallstrom, associate executive director of the American Association for Respiratory Care, who will join Gibson for the presentation. "This will vividly show what happens when a person suffers an asthma attack and just how dangerous it can be if they don't have that rescue inhaler available. This is an important message for the teachers as well. Everyone needs to understand that asthma is not something to be dismissed."

In addition, the AARC wants to reach those students who smoke or are considering smoking. Gibson will show what happens to the lungs of a smoker as they develop COPD, which is better known as chronic bronchitis or emphysema.

"So many of the students think they can just quit smoking later, but it is an addiction on a par with heroin, very difficult to stop," said Kallstrom, who has been a respiratory therapist for 30 years. "We hope this seminar will help dissuade students from smoking tobacco."

As a public service, the AARC will present this seminar at high schools across the country over the next two years, hoping to reach 10,000 students in the schools and a much larger audience through the news media. The goal is to make students and the general public aware that they have an opportunity to keep their lungs healthy and improve their chances of living a longer, healthier life. Source: AARC

Effect of primary-care spirometry on the diagnosis and management of COPD

Primary-care spirometry has been promoted as a method of facilitating accurate diagnosis of chronic obstructive pulmonary disease (COPD). The present study examined whether improving rates of diagnosis lead to improvements in pharmacological and non-pharmacological management.

From 1999 to 2003, the current authors provided an open-access spirometry and reversibility service to a local primary-care area, to which 1,508 subjects were referred. A total of 797 (53%) had pre-bronchodilator airflow obstruction (AFO). Of the subjects who underwent reversibility testing, 19.3% were no longer obstructed post-bronchodilator. The results and records of a subgroup of 235 subjects with post-bronchodilator AFO were examined.

Of the 235 subjects, 130 received a new diagnosis, most commonly COPD. The patients with COPD were significantly undertreated before spirometry and testing led to a significant increase in the use of anticholinergics (37 versus 18%), long-acting ß-agonists (25 versus 8%) and inhaled steroids (71

versus 52%). More than three quarters of smokers received smoking cessation advice but very few were referred for pulmonary rehabilitation.

In conclusion, primary-care spirometry not only increases rates of chronic obstructive pulmonary disease diagnosis, but it also leads to improvements in chronic obstructive pulmonary disease treatment. The use of bronchodilator reversibility testing in this setting may be important to avoid misdiagnosis.

Source: Eur Respir J 2006; 28:945-952

HOME RESPIRATORY MUSCLE TRAINING IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Objective and background:

The benefits of inspiratory muscle strength training in decreasing symptoms, disability or handicap of patients affected by COPD are not well established. The objective of this study was to assess the efficacy of the constant use of a new flow-volumetric inspiratory exerciser, named Respivol™, in improving respiratory functional parameters in COPD patients.

Methods:

Twenty consecutive ambulatory patients affected by COPD were enrolled. Each patient was assessed, before and after 3 and 6 months inspiratory exercise with Respivol™, for the following clinical parameters: maximal inspiratory pressure, maximal expiratory pressure, dyspnea grade, quality of life by a self-administered St George questionnaire and a 6-min walking test. After a brief progressive ambulatory training program, inspiratory exercise with Respivol™ was performed at home for 6 months. All patients used Respivol™ together with medical treatment.

Maximal inspiratory pressure and maximal expiratory pressure values were significantly increased after 3 and 6 months of exercise. Dyspnea grade was significantly reduced and the 6-min walking test showed an increase in effort tolerance, after 6 months of home training. Quality of life assessment showed an improvement, associated with a decrease of respiratory disease symptoms.

Conclusions:

Inspiratory muscle strength training with Respivol™ seems to be efficient in reducing symptoms and improving quality of life in adults with COPD. Source: Respirology

NIH STUDIES EFFECT OF HOME OXYGEN THERAPY ON PATIENTS WITH MODERATE COPD

The National Heart, Lung, and Blood Institute (NHLBI), part of the National Institutes of Health, is launching with the Centers for Medicare & Medicaid Services a six-year, $28 million randomized clinical trial of the effectiveness of long-term, home oxygen therapy for COPD. In this Long-term Oxygen Treatment Trial, researchers at 14 clinical centers across the United States will study about 3,500 patients with moderate COPD to determine whether supplemental oxygen will help them lead "longer, more active, and better quality lives," said a statement from NHLBI on November 20. The study aims to help CMS decide whether to extend coverage for home oxygen treatment to patients with moderate COPD. Currently, Medicare limits coverage of home oxygen therapy to beneficiaries with severe COPD (very low blood oxygen levels while resting).

"COPD is a devastating, highly disabling disease. The prospect that home oxygen therapy could lessen the disability of COPD and perhaps even prolong life when given earlier during the course of the disease is enticing, but we need more information," said NHLBI Director Elizabeth G. Nabel, M.D.

The decision to undertake the study evolved from a scientific working group convened in May 2004 by NHLBI and the Department of Health and Human Services Agency for Healthcare Research and Quality, which called for more research on the safety and efficacy of long-term oxygen therapy in patients with COPD. Patient recruitment for the trial is expected to begin in late 2007. Participants will be randomly selected to receive or not to receive supplemental oxygen for approximately three years.

"As the population ages, the number of individuals affected by COPD is on the rise," noted James Kiley, PhD., director of the NHLBI Division of Lung Diseases. "It is more imperative than ever that we find treatments that will improve the health and function of patients with chronic lung diseases such as COPD." November is National COPD Awareness Month.

Source: www.aahomecare.org

THREE THINGS COPD SUFFERERS SHOULD KNOW DURING THE COLD SEASON

Learn how the immune system is compromised by poor oral hygiene and why impeccable daily cleaning in the mouth is necessary.

If you have emphysema, chronic bronchitis or asthmatic bronchitis (the group of diseases that make up Chronic Obstructive Pulmonary Disease or COPD), you have a few good reasons to keep your teeth clean:

- There are over 300 species of bacteria that live in your mouth. Periodontal disease is caused by the plaque producing bacteria.
- Studies suggest that periodontal disease may promote the progression of COPD. Bacteria in the mouth may infect the body either through saliva or from breathing into the lungs.
- Cytokines are released by the body in defense of periodontal disease. These cytokines tax the body's immune system.

COPD sufferers know an ordinary cold or flu can be destructive. Coughs linger and flu turns into pneumonia.

The bacteria that cause periodontal disease and are taxing your immune system are breeding right now in the cozy, moist, acidic environment of your mouth. The areas between the teeth are particularly good breeding grounds because the bacteria thrive in the absence of oxygen. Symptoms of periodontal disease are often not noticeable until the disease is advanced. A dentist can diagnose the disease in the early stages, prior to individuals realizing they have it.

Periodontal disease is prevented by thoroughly cleaning your teeth. Professional cleanings at a dentist office every six months, brushing teeth twice a day and flossing once a day are recommended. Because it is a laborious task to floss, most people don't. Yet, to prevent and control periodontal disease, flossing is extremely important. Unfortunately, The Journal of Clinical Periodontology reported that for those that do floss, only 18 - 35% of the plaque between teeth is removed. And oral irrigators can't cut through plaque's sticky biofilm.

More tools are available to keep teeth and gums healthier than in the past. Electric toothbrushes, oral irrigators, tongue scrapers, oral disinfectants and a new device - Dental Air Force that combines brushing and flossing - are available. The Dental Air Force (www.dentalairforce.com) also has an added benefit of aerating the sites between teeth, changing the environment and making it difficult for the bacteria to grow.

Studies show that oral health is critical to total health. The National Center for Health Statistics reports that there are over 16 million Americans with COPD and it is the fourth leading cause of death. So, keeping your teeth clean is good "health sense". Source: Medlinx.com

PERSPECTIVES THAT INFLUENCE ACTION PLANS FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Background: Prompt treatment of acute exacerbations (AEs) in chronic obstructive pulmonary disease (COPD) improves quality of life and reduces the use of health care resources. Although patient self-management through an individualized action plan (AP) can help with early initiation of therapy, its use is critically dependent on the patient recognizing the features of an exacerbation.

Objective: To describe COPD patients' experiences with AEs, as well as health care professionals' (HCPs') attitudes toward the provision of an AP as part of self-management education.

Methods: Thirty-two patients with moderate to severe COPD who recently experienced at least one AE, and 22 HCPs with experience in the management of COPD, were interviewed.

Results: The most common symptoms and signs associated with an AE were difficulty breathing (84%), fatigue (81%), cold symptoms (59%), changes in sputum colour (53%) or amount (47%), and cough (44%). The main precipitants identified were environmental triggers (47%), infective agents (31%), excessive activities (25%), emotional factors (16%) and changes in medications (9%). Strategies for dyspnea relief included increasing medications (72%), resting (56%), avoiding exposure to environmental triggers (41%) and performing breathing exercises (31%). Patients supported the use of an AP and recommended that it be individualized for symptoms and triggers, and that it should also include strategies for addressing anxiety and depression. HCPs also supported the use of an individualized AP and recommended that it be regularly revisited, depending on the patient's disease severity.

Conclusions: Patients' experiences with AEs do not always conform to a standard medical definition. Therefore, an understanding of their experience is of value in the design of an individualized AP. HCPs support the use of an AP that emphasizes self-management of exacerbations as well as general COPD management. Source: Pulsus Group Inc..

CUTTING BACK ON SMOKING WON'T CUT DEATH RISK

Less is not more when it comes to smokers' health, new research finds.

A Norwegian study found that merely cutting back on the number of cigarettes smoked per day did not lower a heavy smoker's risk of early death. Reporting in the journal Tobacco Control, a team from the National Health Screening Service in Oslo found that limiting the daily amount of cigarettes may be useful as a temporary measure when a smoker is trying to quit, but kicking the habit is the only real way of reducing the risk of smoking-related health consequences and early death.

The team studied more than 51,000 men and women ranging in age from 20 to 34 at the start of the study, when they were first assessed for cardiovascular risk factors. The participants were screened again two more times over an average follow-up of 20 years.

The participants were classified as: never smokers; quitters (those who stopped smoking between the first and second screening); moderate smokers (1 to 14 cigarettes a day); reducers (more than 15 cigarettes a day, but by more than half at the second screening); and heavy smokers (more than 15 cigarettes a day). Compared to men who were heavy smokers, death rates from all causes were not significantly different for male "reducers." And women who cut back on smoking actually had higher death rates from all causes than female heavy smokers.

People may be misled if they're told that cutting back on their smoking may help them stave off disease and early death, the study authors concluded. SOURCE: BMJ

BRAIN SPECTROSCOPY GIVES BUTTHEAD NEW MEANING

A long history of smoking cigarettes changes the chemistry of the brain, apparently causing neuronal damage, found German radiologists. Nevertheless, the shifts in brain chemistry, revealed by proton magnetic resonance spectroscopy on smokers with a 25-pack-year record, appeared to be reversible, reported Okan

Gür, M.D., of the University of Bonn, at the Radiological Society of North America meeting. Concentrations of N-acetylaspartate were significantly lower (P=0.01) in the brains of smokers than in scans done on age-matched healthy controls, he said. Dr. Gür and colleagues performed MRS in the second week after smoking cessation and repeated the studies six months later on 43 smokers (21 men, 22 women mean age 40.5) with an average of 25 pack years smoking history and on 35 healthy controls. They measured absolute and relative concentrations of N-acetylaspartate, total creatinine, and choline containing compounds in the left prefrontal cortex and the anterior cingulate cortex.

N-acetylaspartate is a marker for neuronal function, while choline is used as a marker of cell death, and creatine concentrations are associated with stress and energy metabolism, he said. At baseline, N-acetylaspartate concentration in the anterior cingular cortex was 13. mmol/L 13.3 in smokers and 13.9 mmol/L in controls (P=0.01), he said. He said that N-acetylaspartate levels were independent of age but were associated with smoking history so that "those who smoked more cigarettes for a longer time had the lowest concentrations, which indicated the greatest degree of neuronal damage," he explained. After six months, smokers who had remained smoke free had normal levels of N-acetylaspartate (13.8 mmol/L).

But among 11 smokers who relapsed, the mean N-acetylaspartate concentration was 13.2 mmol/L, he said.

MRS studies have detected similar "decreased concentration of N-acetylaspartate associated with mood disorders and with substance abuse," he said. There were no significant differences in N-acetylaspartate concentrations in the left prefrontal cortex, but there was a difference in total creatine concentrations in the prefrontal cortex that was associated with an increased risk of relapse. Smokers who relapsed had mean baseline total creatinine levels of 7.6 mmol/L versus 7.0 for smokers who successfully stopped smoking. And among smokers who successfully quit, total creatine concentration was 8.2 mmol/L at six months. Dr. Gür said total creatinine is associated with stress, which suggests that smokers who are especially stressed at baseline find it more difficult to quit smoking. "But this is a bit of a quandary, since it appears that successful smoking cessation also increased this stress-related metabolite," he said.

Source: Radiological Society of North America

ADHERENCE TO PULMONARY REHABILITATION: A QUALITATIVE STUDY

SUMMARY

Objectives

To explore the experiences of chronic obstructive pulmonary disease (COPD) patients invited to join a pulmonary rehabilitation (PR) programme. PR has been shown to be an effective non-pharmacological intervention; however uptake and completion of programmes is frequently low.

Design

Qualitative study using semi-structured interviews

Participants

Twenty COPD patients aged 45–85 years, referred for PR over a 2-year period.

Results

In this group of patients the influence of the referring doctor was the key factor in leading patients to take up an invitation to attend a PR programme. Patients responded positively to doctors who imparted enthusiasm for, and belief in, the benefits of the intervention. Once started, ongoing adherence to the programme was positively influenced by a sense of group support, and increased self-confidence. Lack of social support at home and overcoming the effort of living with COPD in order to attend were cited as negative influences on continued adherence.

Conclusions

This study has shown that the referring doctor plays a key role in the uptake of PR programmes. It suggests that a positive approach by doctors could increase the level of adherence to PR. Recognition and support in the area of social support for those living alone may also increase adherence. These simple, cost effective approaches may encourage more patients with COPD to participate in a therapeutic intervention which now has a strong evidence base. SOURCE: Respiratory Medicine

HOW COULD THE FLU VACCINE PREVENT HEART ATTACKS

For years, studies have drawn a link between influenza and heart disease. As early as 2003, a study published in the "New England Journal of Medicine" involving people with heart problems -- either prior heart attacks, angioplasty or stent placement (to open arteries) -- found that those who got the flu shot were 20 percent less likely to end up in the hospital with a heart-related problem and 50 percent less likely to die in the year following vaccination. The results are pretty amazing, but also fairly logical: Any sort of viral infection, which includes the flu, makes the heart work harder, and people who have had heart attacks or surgeries to prevent them have weakened hearts to begin with.

But that's not all these studies are reporting. Researchers are finding that the increase in survival rate isn't only related to preventing the flu; they believe the flu vaccine (the shot, not the nasal spray, which is not approved for heart patients) may have additional effects that actually protect heart patients from having a major heart-related incident in the year following vaccination. While details are spotty, the implication here is that the people who did not receive the vaccine and did die of heart disease did not necessarily have the flu.

The studies show fairly consistent results, although it should be noted that these are observational studies, not laboratory studies. This means researchers have less control over the conditions. Still, at least four studies since 2003, the most recent one conducted in Poland in 2006, show that heart patients who receive the flu vaccine are hospitalized less and have lower

fatality rates in the year following vaccination than heart patients who do not receive the vaccine. The data shows anywhere from a 25 to 50 percent decrease in mortality and hospitalization rates from heart-related events for vaccinated patients. One study found that heart-attack deaths rise in flu season and fall in the off-season like clockwork.

The most obvious explanation for the findings is that the flu is really, really dangerous for people with heart problems. It follows that preventing flu-related complications like lung infections, which decrease oxygen intake and make the heart pump harder to get oxygen to all the parts of the body, would decrease heart attacks in people who have weakened hearts. Plus, when the immune system is actively fighting off a spreading infection like the flu, one thing it does is release chemicals that cause affected tissue to become inflamed (see How the Immune System Works to learn more). This inflammation affects blood clotting and vascular efficiency, which can land heart patients in the hospital or the morgue. The relationship between the flu and heart complications is well-documented.

What's less well-understood is why the flu vaccine seems to protect heart patients beyond the obvious "prevent the flu, prevent heart complications" angle. Researchers have set forth a few hypotheses on why the vaccine may have this protective effect. They mostly center around the immune system. One possibility is that any activation of the immune system (as occurs with vaccination) helps heart patients more fully recover from the effects of a heart attack or heart surgery. In this case, with a more complete recovery, another heart attack or heart-related hospitalization would be less likely. The other main discussion has to do with inflammation, which is closely linked to heart attacks, as mentioned above. It could be that the vaccine's triggering of the immune system helps it to more easily fight off all sorts of infections, and infections make it more likely that someone with a heart problem will be hospitalized or die. By strengthening the immune system's ability to fight infection before it really takes hold, the vaccine ends up preventing the immune system's inflammatory response.

The lesson here is this: If you have a history of heart disease, you should get the flu shot every year unless your cardiologist tells you otherwise. The U.S. government is aiming to get 90 percent of heart patients over the age of 65 vaccinated by 2010. Right now, the number is somewhere around 70 percent, and it's even lower for younger people with cardiovascular disease. Estimates are that hundreds or even thousands of heart-disease-related deaths could be prevented every year if the 90 percent vaccination mark were reached.

Source: HowStuffWorks, Inc.

KAMADA BEGINS PHASE I CLINICAL TRIALS OF ITS AEROSOLIZED API TREATMENT FOR CONGENITAL EMPHYSEMA

Joint clinical Development Agreement signed with PARI

Kamada (TASE:KMDA), a bio-pharmaceutical company engaged in the development, manufacturing and marketing of prescription medicines, announced today that it has begun human Phase I trials of an inhaled formulation of its flagship drug, Alpha 1-Proteinase Inhibitor (API). The trials will examine the product's safety on approximately 20 participants and will continue for several months according to a plan approved by the EMEA, the European Agency for Evaluation of Medicinal Products.

Kamada has also signed a strategic agreement with PARI, a Germany-based world leader in aerosol therapies, for the conjoint clinical development and marketing of API administered by inhalation.

Under the agreement, PARI grants Kamada the exclusive license to use PARI's eFlow Electronic Nebulizer for clinical trials and to commercialize Kamada's API with the eFlow device, including marketing and distribution.

PARI will further develop the eFlow and provide technical and regulatory support throughout the clinical trials and the registration process, until final approvals are received from the regulatory authorities. Kamada will supply the API drug product required for the clinical trials.

Kamada CEO David Tsur stated, "By enabling the penetration of a new market for its API, this agreement marks a milestone for Kamada. The respiratory form of API also represents a revolution in treatment as it provides the patient with a much higher level of comfort. It also has considerable financial advantages, since a much lower dose is required compared to the infused version, enabling the treatment of a greater number of patients."

"We are excited to extend our collaboration for the long term with Kamada, the leading producer of a highly purified, ready-to-use injectable API, to develop it as an inhaled treatment for congenital emphysema," said Dr. Martin Knoch, Managing Director of PARI. "We believe this could be a substantial improvement for patients and a perfect example of how eFlow can contribute to a more efficient and convenient therapy."

"Kamada's API holds Orphan Drug Designation for the treatment of Congenital Emphysema and Cystic Fibrosis in Europe and the U.S. This designation grants Kamada regulatory support, tax incentives and market exclusivity for 7-10 years, as well as funding to stimulate further research and development, should Kamada reach the market first," added Mr. Tsur.

About Kamada

Kamada is a biopharmaceutical company engaged in the development, production, and marketing of high quality, ready to use, plasma therapeutics. In addition to API, Kamada's product line includes specific and general immune globulins, and other plasma-derived products which are manufactured using sophisticated chromatographic purification technology. Kamada is based in Kiryat Weizmann Science Park, Ness Ziona, Israel.

About eFlow

eFlow, an electronic, portable nebulizer, enables extremely efficient aerosolization of liquid medications via a vibrating, perforated membrane. Compared to other nebulizer systems,

eFlow can produce aerosols with a very high density of active drug, a precisely defined droplet size, and a high proportion of respirable droplets delivered in the shortest possible period of time. Combined with its silent mode of operation, small size (it fits in the palm of your hand), light weight, and battery use, eFlow helps reduce the burden of daily inhalation treatments.

Source: Business Wire 2006

RESEARCH TRIANGLE PARK, N.C.

Results of a new survey conducted among more than 1,000 Americans age 45 and older reveal that most adults are not concerned about Chronic Obstructive Pulmonary Disease (COPD), a lung disease that is the fourth leading cause of death in the U.S. Acording to the survey, only 1 in 10 adults could correctly identify what COPD is, and only 4 percent consider COPD to be a health condition they worry "the most" about getting, compared against other common chronic diseases, such as Alzheimer's disease, heart disease, diabetes, or lung cancer. The survey highlighted other common misperceptions that exist:

COMMON PERCEPTION...

52% believe more Americans die yearly from motor vehicle accidents, prostate cancer, HIV/AIDS than from COPD

REALITY....

'* COPD claims the lives of more than 120,000 Americans each year. This is almost:

- 3x the number of deaths caused by motor vehicle accidents
- 4x the number of deaths caused by prostate cancer
- 6x the number of deaths caused by HIV/AIDS

COMMON PERCEPTION...

39% of smokers say they are "not at all," or "not very" concerned about COPD.

REALITY....

* Among smokers,

- men are 12x more likely to die from COPD as men who have never smoked
- and women 13x more likely to die from COPD as women who have never smoked

COMMON PERCEPTION...

Among women, 55% were personally concerned about breast cancer, compared to 35% concerned about COPD.

REALITY....

* Each year: about 40,000 women die from breast cancer, but about 64,000 die from COPD

COMMON PERCEPTION...

Among men, 51% were personally concerned about prostate cancer, but only 29% were concerned about COPD.

REALITY....

* In 2003, prostate cancer was responsible for 28,900 deaths among men, versus about 59,000 who died of COPD that same year.

About the Survey

The survey was conducted nationally among 1,313 Americans 45 years of age and older from Oct. 19-23, 2006. Sampling error is +/- 2.7%. Interviews were conducted by telephone using an unrestricted random digit dialing method, a procedure that controls for serial bias in systematic sampling through its selection of random area code numbers.

Source: prnewswire.com

RESPONSE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD): REDUCED ARM ACTIVITIES.

Shortness of breath, the distressful sensation of uncomfortable breathing, occurs in people with pulmonary disease when the work of the breathing muscles is increased or the capacity of the breathing muscles to do this work is decreased. In people with pulmonary disease, many activities may lead to shortness of breath.

There are two types of lung disease that are characteristic of several neuromuscular diseases. Obstructive lung disease affects the lung itself, as in asthma and emphysema. Restrictive lung disease, occurring in disorders with muscle weakness, spine deformity and obesity, is caused by weakness of the muscles of respiration. Inspiration and expiration are the two parts of normal respiration. The major inspiratory muscle is the diaphragm, while the most active expiratory muscles are the abdominal and internal intercostal (chest) muscles.

In the health care setting, we often evaluate a person's activity tolerance by their ability to walk or ride a bicycle. Arm activities are also important to people with pulmonary diseases. In fact, the shortness of breath--limited ability to perform arm activities is often a response leading to disability. Individuals with severe COPD report a marked increase in the sensation of shortness of breath when performing daily tasks requiring arm use, particularly unsupported arm use, such as bathing and lifting. To reduce or avoid intolerable levels of shortness of breath with arm use, individuals limit their activity.

Responses to reduced activity, in turn, are muscle deconditioning and general disability. Reduced arm activities also may lead to emotional and social alterations, such as reduction in life satisfaction, increased anxiety, depression, alteration in self-care strategies, and enhanced dependency necessitating an increase in social support.

Breathing is a complex phenomenon, carried out by many muscles of the torso and neck. During periods of increased breathing demand, the work to be done by the breathing muscles may be shifted among these muscles to prevent muscle fatigue. The breathing muscles, in turn, have multiple roles. They maintain ventilation, and they carry out other motor functions as well. For example, torso muscles maintain upper body posture, assist in torso motion and support, and contribute to ventilation. Ordinarily, the breathing muscles are capable of maintaining ventilation and additional motor functions. However, when the breathing muscles are required to perform other motor functions, their capacity to assist in breathing is reduced.

Similar to all other activities, unsupported arm activity leads to an increase in the need for oxygen and other breathing gas exchange in the lungs. Unsupported arm activity also creates a

unique challenge in pulmonary disease, because it places both breathing and other motor function burdens on the breathing muscles. During unsupported arm activity, therefore, the breathing muscles are required to perform two roles: the maintenance of breathing, and the stabilization of the chest wall in support of arm weight (resulting in limited activity). This may be likened to the use of muscles of the face that have multiple roles, such as speech, smiling and chewing, of which only one role can be carried out at a time. When a person with pulmonary disease performs an activity but needs the same muscles for breathing, shortness of breath ensues.

Rehabilitation strategies may improve arm activity endurance and enhance functional ability in pulmonary disease. Persons with pulmonary disease can pace the performance of arm activities in relation to the breathing cycle in an effort to decrease shortness of breath. Individuals with pulmonary disease report less difficulty with arm activity performed in phase with inspiration than with arm activity performed with expiration. An additional strategy to improve unsupported arm function includes arm exercise training. A simple and inexpensive unsupported arm training exercise is to perform lightweight dowel rod lifts from waist to shoulder level. The addition of weights to the rods can be used to increase the resistance as tolerance grows. Training strategies should be implemented as early as possible in the disease course, for they may delay, limit, or prevent reduced arm activity tolerance in pulmonary disease.

Many activities of daily living require the use of unsupported arm exercise. The inability to perform such tasks can lead to severe disability in persons with pulmonary disease. Unsupported arm activity leads to increases in breathing muscle work and recruitment to maintain torso position. Treatment strategies to improve unsupported arm activities include unsupported arm exercise training. Additional research, involving persons with COPD, to identify mechanisms of reduced unsupported arm activity may lead to better understanding of the reluctance to perform routine arm activities, as well as to the development of more treatment strategies to improve arm exercise endurance and functional ability.

Source: RRTC/NMD

RESEARCH SHOWS BENEFITS OF CRANBERRIES

Full of antioxidants, can cut bad cholesterol and fight infections

Cranberries are among the top foods with proven health benefits, according to Amy Howell, a researcher at Rutgers University. Cranberries are full of antioxidants, which protects cells from damage by unstable molecules called free radicals. The National Institutes of Health is funding research on the cranberry's effects on heart disease, yeast infections and other conditions, and other researchers are investigating its potential against cancer, stroke and viral infections.

So far, research has found:

Drinking cranberry juice can block urinary infections by binding to bacteria so they can't adhere to cell walls. While women often drink unsweetened cranberry juice to treat an infection, there's no hard evidence that works.

A compound Howell discovered in cranberries, proanthocyanidine, prevents plaque formation on teeth; mouthwashes containing it are being developed to prevent periodontal disease. In some people, regular cranberry juice consumption for months can kill the H. pylori bacteria, which can cause stomach cancer and ulcers.

Preliminary research also shows:

- Drinking cranberry juice daily may increase levels of HDL, or good cholesterol and reduce levels of LDL, or bad cholesterol.
- Cranberries may prevent tumors from growing rapidly or starting in the first place.
- Extracts of chemicals in cranberries prevent breast cancer cells from multiplying in a test tube; whether that would work in women is unknown.

Source: MSNBC.com

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